

The Law and Poisoning.

There was no legal definition of poison, but sections relating to criminal poisoning referred to a poison or other destructive or noxious thing. In abortion cases "noxious thing" was used to mean something which might reasonably cause abortion. For example, 2 grains of aloes three times a day, or 10-grain doses of quinine, were regarded as noxious things. If a medical practitioner suspected that poison was being unlawfully administered to his patient he must make sure of his ground by having an analysis made by an experienced man, and meanwhile move the patient to a nursing home and place him in charge of a responsible nurse. He should also call in, at the earliest opportunity, another doctor in whom he had confidence. The poison laws were a wonderful protection to the public, and valuable information was obtained from the poison registers. A committee was now sitting to frame laws to include all the recently discovered poisons. Drug addiction had become a matter of international importance.

Sir William Willcox then made brief reference to commercial poisoning. The present great use of petrol had led to a number of cases of carbon monoxide poisoning; policemen on traffic duty had collapsed through inhaling petrol fumes. Tetra-ethyl lead was a very toxic substance, and showed a strong affinity for the nervous system. The full symptoms did not appear for months, and when in full measure they were probably incurable. A special committee had been appointed to investigate this question too, but it would probably have been better if this step had been taken before allowing the substance to be used. With regard to the treatment of poisoning in general, the first step was to remove the poison without delay—the stomach must be washed out. Then stimulant treatment should be adopted. Recovery might be a slow process.

On the motion of Dr. WILLIAM HILL, supported by the PRESIDENT, Sir William Willcox was cordially thanked for his lecture.

VORONOFF'S EXPERIMENTS ON THE IMPROVEMENT OF LIVESTOCK.

LAST November a delegation representing the Ministry of Agriculture, and consisting of a physiologist, a geneticist, a dietician, and a veterinary surgeon, visited Algiers, where, in company with similar delegations from other countries, Dr. Serge Voronoff demonstrated testis grafting in relation to agriculture. The delegation had three main aims: to study the technique, to examine animals subjected to this technique, and to investigate the economic results.

The technique, which is described in full detail in an appendix to the report of the British delegation,¹ consists essentially in the implantation of pieces of testicular tissue from one male on the surface of the testes of another. For the human subject monkeys and apes act as the donors, but in animals it is possible to use a male of the same species. The scrotum is opened, the surface of the testes is scarified to provoke a mild aseptic inflammation, and on this scarified area pieces of freshly excised testis are implanted and stitched in position. If the operation is performed properly untoward sequels are rare.

It is claimed that the new testicular material replaces or reinforces the physiological action of the animal's own testis, and so restores or increases the degree of manifestation of those characters which depend for their expression and full maintenance on the proper functioning of the gland. It is claimed by Dr. Voronoff that these glands also play an important part in the maintenance of general vigour. He has employed this operation on animals for two distinct purposes: to rejuvenate and restore the reproductive powers of decrepit and infecund males, and to stimulate the growth and general vigour of sexually immature males, whose testes have not yet profoundly affected the developing characterization of the individual.

¹ Report on Dr. Serge Voronoff's Experiments on the Improvement of Livestock. By F. H. A. Marshall, Sc.D., F.R.S., F. A. E. Crew, M.D., D.Sc., Ph.D., A. Walton, Ph.D., and Wm. C. Miller, M.R.C.V.S. Ministry of Agriculture and Fisheries, Board of Agriculture for Scotland. London: H. M. Stationery Office. 1928. 9d. net.

The delegation examined a bull (Jacky) discarded as useless in 1922, when 17 years of age, and operated on in 1924 by Dr. Voronoff. During the next two years Jacky sired nine calves, after which his reproductive powers seemed to wane, and the operation was repeated, apparently with some success.

The delegation points out, however, that it is difficult to accept this case as a complete and unqualified substantiation of Dr. Voronoff's claims concerning rejuvenation. Stud bulls are usually discarded in Algeria when about 12 years old, and the fact that Jacky was retained in use so long suggests that he was an exceptional animal and that he may have reacted more strongly in consequence. He cannot be compared with bulls in Britain, which are generally discarded when 4 to 5 years old, and exact data as to the age to which a bull may prolong his sexual vigour are not available. Jacky, moreover, may have been in ill health prior to the operation. In any case his subsequent fertility ratio was exceptionally low, and there is a vague suggestion of doubt as to the paternity of some of his calves. The delegation believes that, although this example may support Dr. Voronoff's first claim, it cannot be accepted as conclusive proof. In any case the use of this procedure in British stock breeding would be slight and confined only to very special sires; alternative methods, such as improved management, are available for extending or increasing the usefulness of such animals. It is recommended, however, in the report that further experiments in this direction should be encouraged owing to the possible value of the method in sire-importing countries.

In connexion with the second purpose of the delegation a number of flocks were inspected in which the operation was claimed to increase the production of both mutton and wool. Here, however, the evidence was less satisfactory, the exhibit being rather in the nature of a sample of an established fact. Definite and detailed information concerning the numbers involved, or of the pedigree and relationship of the individuals exhibited, was not forthcoming. Moreover, the sheep were not confined under proper experimental conditions, nutritional factors were disregarded, and control was unsatisfactory. In the matter of weight of progeny, among the samples submitted grafted rams were superior to the non-grafted. Whether this was due to the direct action of the sexual hormone or to an increased rate of growth which might have been conducive to an improvement of type could not be determined. The fleeces varied very much in weight, and although it was claimed that there was an increase in weight of wool, samples showed no improvement in quality.

The delegation considers that the increment of both weight and fleece attained by the grafted sires can have no value in comparison with the cost of the operation, ram flesh being inferior in quality; it is only in the transmission of desirable characteristics to the progeny that its value might lie.

The economic advantages of this procedure in Britain are thought to be doubtful; it is desirable here to increase the quality rather than the quantity of wool. There is no demand for larger carcasses, but the more rapid attainment of weight for age might be an economic advantage, provided this is considered in relation to cost of upkeep.

The British delegation concludes that the claim to effect rejuvenation of the aged and decrepit male may be justified, although the evidence is not based on critical experimentation. In any case its value in a sire-raising country like this is doubtful, its usefulness being limited to sire-importing countries. The second claim of increase in body weight and wool clip is supported by the figures submitted and the sheep exhibited, but the conditions under which the experiments were conducted, the inadequacy of the data, and the methods of presenting them prevent the formation of a critical opinion. Its direct economic advantages appear to be negligible. Dr. Voronoff's further claim that these "improved" characteristics are inherited involves the acceptance of the hypothesis of the inheritance of acquired characteristics, which has never been substantiated. It is suggested, however, that both claims might be tested further and more critically in this country, where conditions are more favourable to scientific control than in Algeria.